RAYTHEON

TECHNICAL INFORMATION SERVICE

Technical Information

CK7576

SUBMINIATURE TRIODE

The CK7576 is a heater-cathode type high-Mu triode of subminiature construction especially designed for grounded grid RF power amplifier service in the VHF and UHF regions. Excellent isolation between input and output circuits coupled with high transconductance, high amplification factor, and good power handling ability make it suitable for a wide variety of applications. The flexible terminal leads may be soldered or welded directly to the terminal of circuit components without the use of sockets. Standard 8-pin subminiature sockets may be used by cutting the leads to a suitable length.

ELECTRICAL DATA

DIRECT INTERELECTRODE CAPACITANCES: ($\mu\mu f$)

	With Shields (Note 1)	Without Shield
Plate to Cathode (P to K)	0.15 max.	0.2 max
Output (Grounded Grid) (P to G + H)	5.3	3.5
Cathode to Heater (K to H)	5.8	5.8
Input (Grounded Grid) (K to G + H)	12	12
Grid to Cathode + Heater (G to K + H)	7.9	6.3
Cathode to Grid (H + P Gnd.)	6.0	5.9

RATINGS–ABSOLUTE MAXIMUM VALUES:

Heater Voltage	6.3±5%	volts
Plate Voltage	250	volts
DC Grid Voltage	–55	volts
Cathode Current	50	mAdc
Grid Current	10	mAdc
Grid Dissipation	0.2	watts
Plate Dissipation	4.1	watts
Peak Heater-Cathode Voltage	±90	volts
Grid Circuit Resistance		
class A	0.1	Meg
fixed bias class C	0.01	Meg
cathode bias class C	0.05	Meg
Peak Positive RF Grid Voltage	10	volts

CHARACTERISTICS AND TYPICAL OPERATION CLASS A:

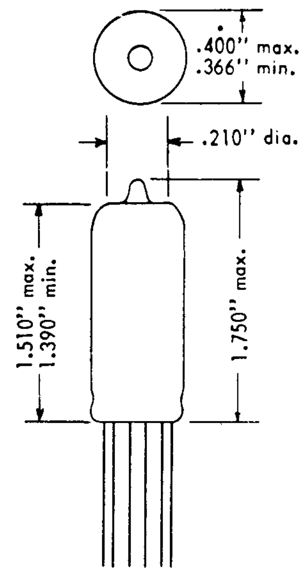
Filament Voltage	6.3±5%	volts
Heater Current	450	mA
Plate Voltage	200	volts
Grid Voltage	0	
Cathode Resistance	150	ohms
Plate Current	15.5	mAdc
Transconductance	10,700	μmhos
Amplification Factor	46	
Grid Bias for I_b=100μAdc (Approx.)	–6.0	volts

● Note 1 Shield tied to grid.

MECHANICAL DATA

ENVELOPE........... T–3 Glass
BASE... Subminiature Button 8–Pin (0.017" tinned flexible leads Length: 1.5)
MOUNTING POSITION:..... Any

PHYSICAL DIMENSIONS



TERMINAL CONNECTIONS:

Lead 1 Heater
Lead 2 Grid
Lead 3 Plate
Lead 4 Grid
Lead 5 Grid
Lead 6 Cathode
Lead 7 Grid
Lead 8 Heater

Printed in U.S.A.

ELECTRICAL DATA (Cont'd)

CHARACTERISTICS AND TYPICAL OPERATION: 235 Mc GROUNDED GRID RF AMPLIFIER:

Filament Voltage	6.3±5%	volts
Plate Voltage	200	volts
Cathode Resistance	150	ohms
Peak RF Grid to Cathode Voltage	14	volts
Grid Current	10	mAdc
Plate Current	37	mAdc
RF Driving Power (Approx.)	0.5	watts
Useful Power Output	3.25	watts

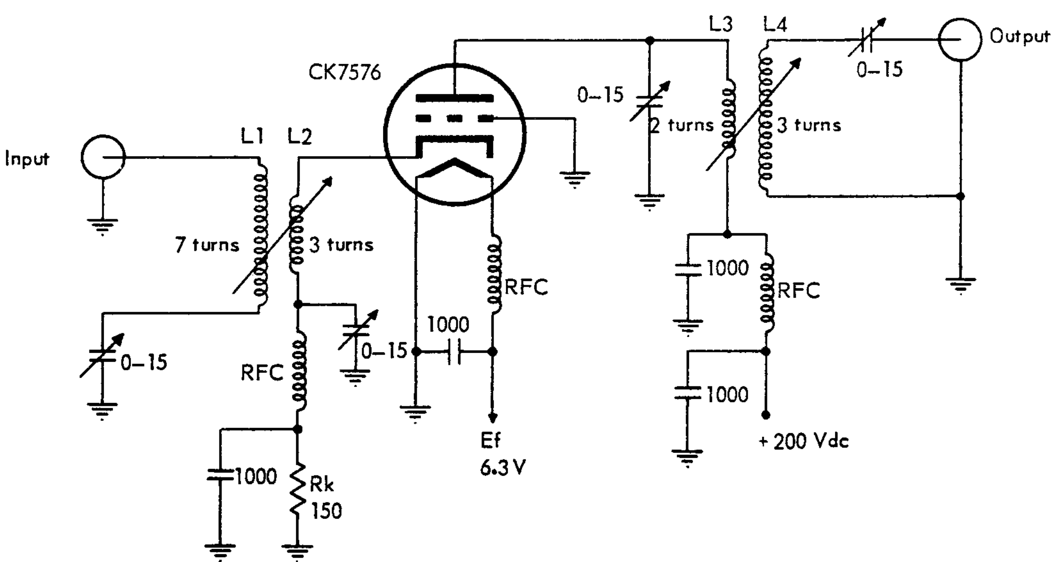


FIGURE 1

TYPICAL 235 Mc GROUNDED GRID, RF AMPLIFIER USING THE CK7576

All capacitances in micro microfarads–RFC–Z235 RF chokes.

Coils L1, L2, L3 and L4 are of #14 copper, enamel covered wire wound with an inside diameter of 5/16".

Due to the relatively high heater to cathode capacitance of the CK7576, in a grounded heater circuit of 200 to 300 MC it is necessary to resort to series tuning of the input circuit. In a circuit with the heater floating above ground by filament chokes it is possible to use parallel tuning. In the circuit shown in Figure 1, operation under Typical Operating 235 Mc Grounded Grid Amplifier, the input impedance is approximately 250 ohms. If all grid pins of the tube are grounded directly to the chassis with as short leads as possible and coupling between input and output tuned circuits is kept to a minimum, the tube will be perfectly stable.

When the tube is operated under the conditions shown under typical operation 235 Mc grounded grid amplifier, a power gain of approximately 8.5 db is obtained. With a plate supply of 250 Vdc, a power gain of approximately 10 db may be realized.

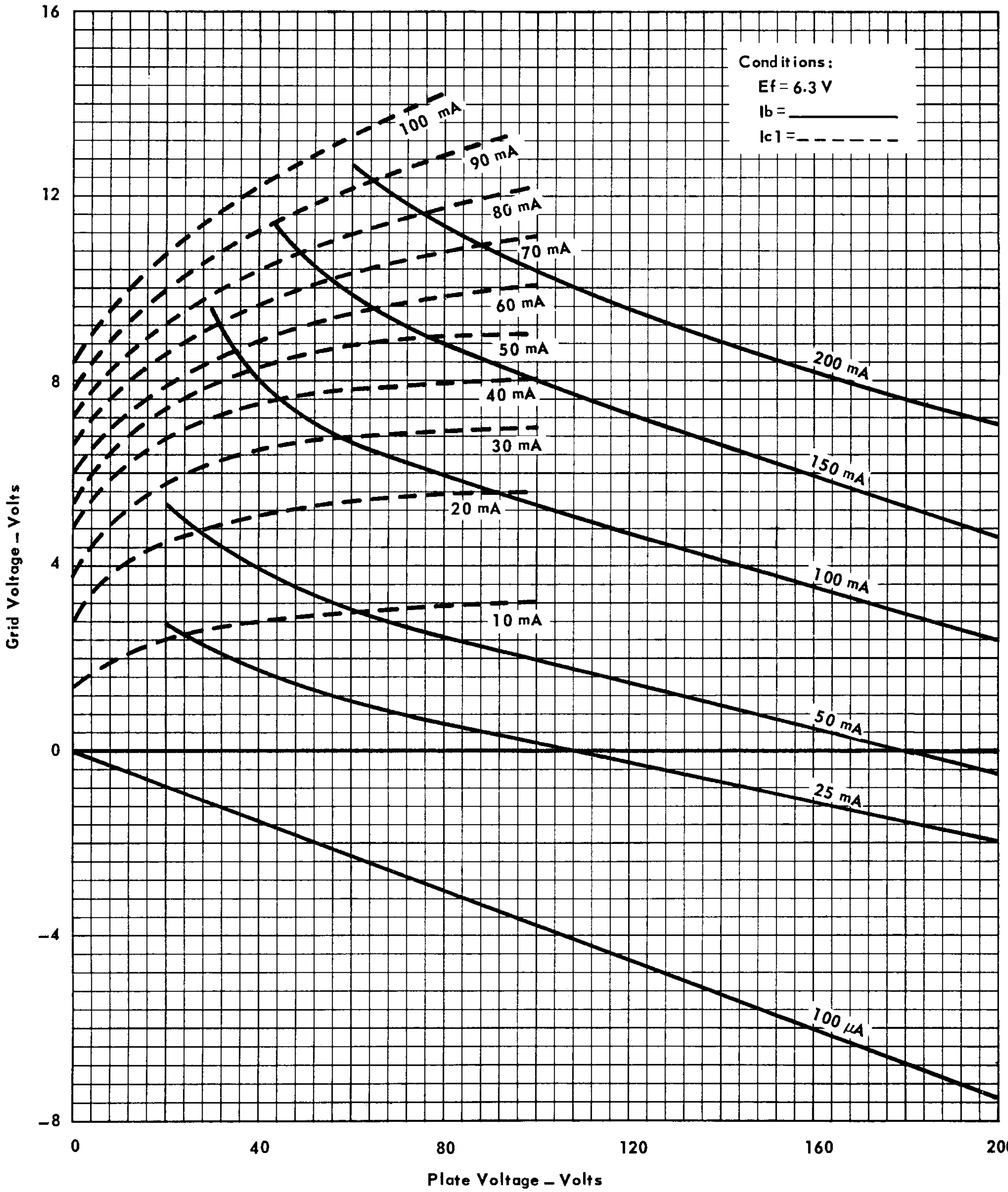
Under no circumstances should the Absolute Maximum Ratings be exceeded.

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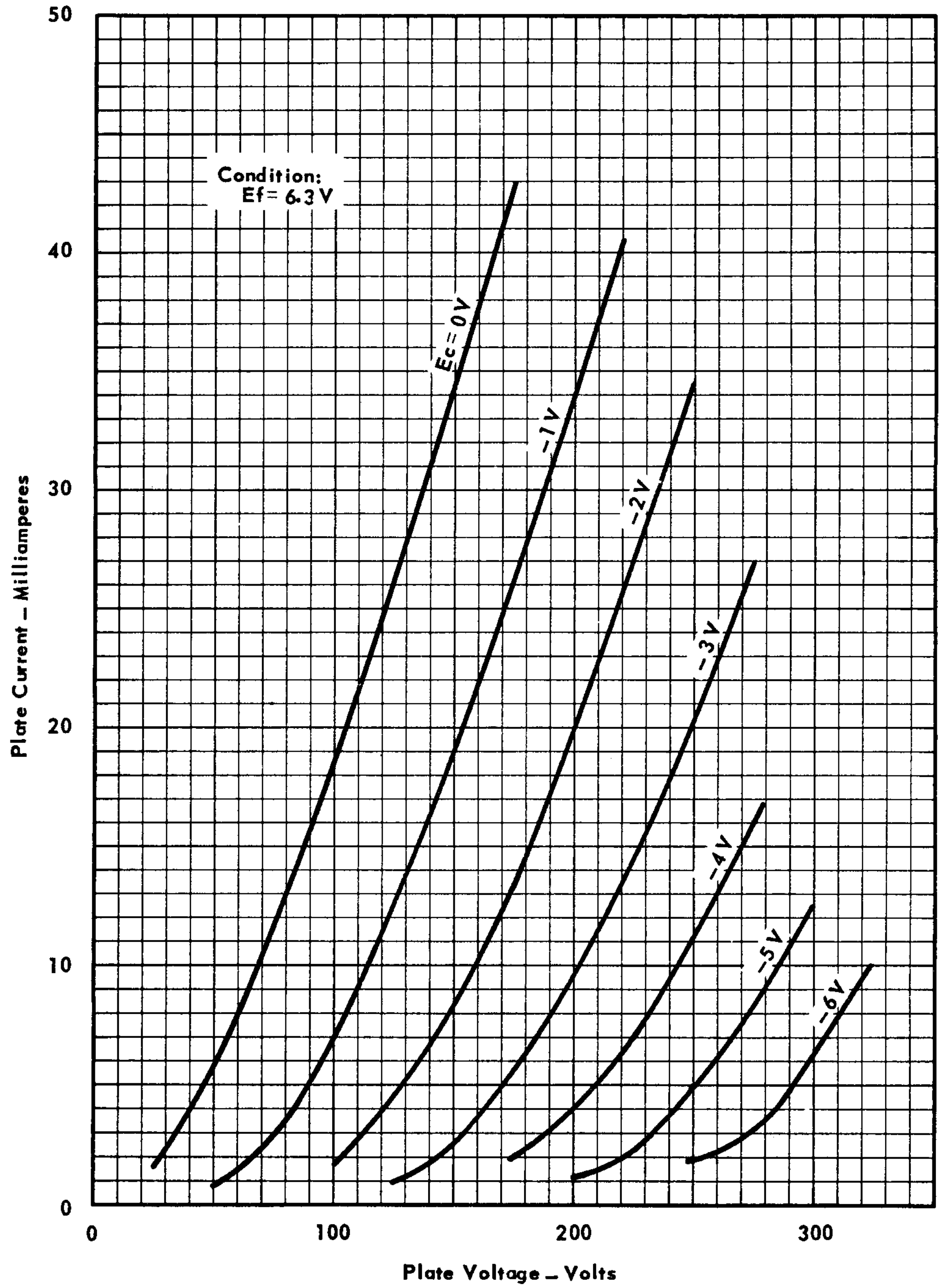
CK7576

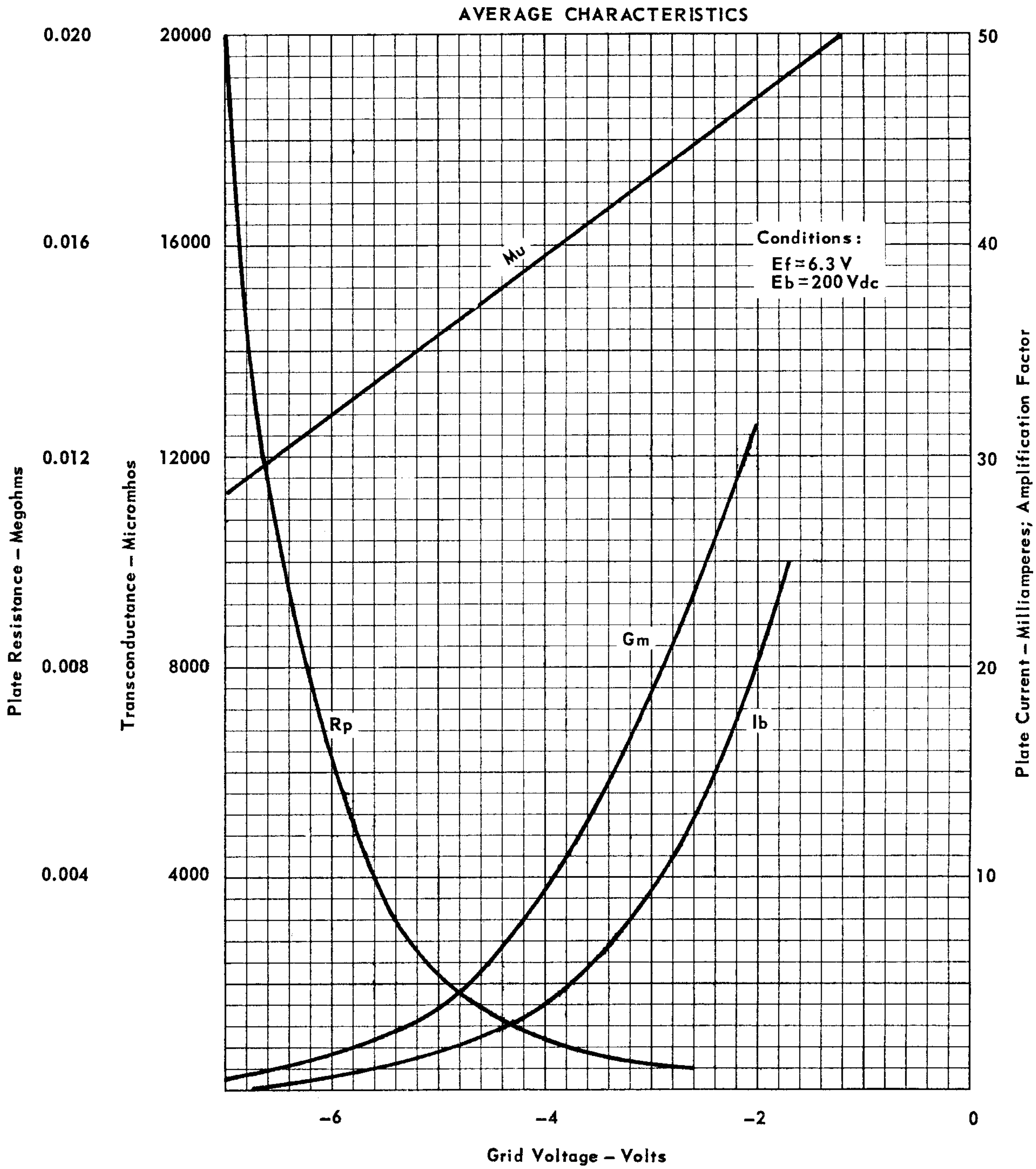
SUBMINIATURE TRIODE

AVERAGE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS




AVERAGE CHARACTERISTICS
Plate Resistance – Megohms
0.020
0.016
0.012
0.008
0.004
Transconductance – Micromhos
20000
16000
12000
8000
4000
Plate Current – Milliamperes; Amplification Factor
50
40
30
20
10
Conditions:
Ef = 6.3 V
Eb = 200 Vdc
Mu
Gm
Rp
Ib
–6
–4
–2
0
Grid Voltage – Volts

AVERAGE CHARACTERISTICS

